

GLASS FIBERS AND MATS HAVING IMPROVED SURFACE STRUCTURES IN GYPSUM BOARDS

ABSTRACT

A gypsum board having roughened surface glass fiber reinforcement. The roughened surface of glass fiber is created by incorporating nano or micro particles of colloidal silica or clay or other inorganic particles in a silane based sizing composition. The sizing coating is partially or completely cured and incorporated in gypsum wet mix either as additions of chopped fibers or as placement of roughened surface glass fiber mats at selected locations within a cast gypsum sheet. The roughened surface of glass fiber with nano or micro particles compliantly bonded with silane polymer transfers load from gypsum to glass fibers providing improved strength and flexure resistance of gypsum boards.